IT CORPORATION
BAKER
EPA ID No. CAD089680250
Completeness Check

I. GENERAL COMMENTS

All statements in Part B application must be referenced to the appropriate 40 CFR Section.

The Part B application should have an index which clearly shows the format of the application and location of all pertinent materials.

All materials must be legible (including, photocopies, maps, photos, etc...).

All drawings, reports, and specifications must bear the imprint of the seal of the registered qualified professional and the title sheet must bear the imprint of the seal and the registered qualified's signature. All design drawings must show the seal, the title, the north point (magnetic or true), date prepared, date revised, datum, and sheet number.

The applicant must demonstrate his procedures in operation that will insure design capacity in storage and treatment unit(s) will not be exceeded. Specify the procedures used by IT Baker for these assurances. This information must include at least the following:

1) Rate of incoming wastes;

2) Rate of direct disposal (specify the design capacity and location of unit(s));

3) Rate of storage (specify the design capacity and location of unit(s), duration of storage (time period for storage prior to treatment (specify the design capacity and location of unit(s), and disposal (specify the design capacity and location of unit(s);

4) Rate of immediate treatment (specify the design capacity and location of unit(s)), duration of treatment (time period for treatment of specific waste prior to disposal (specify the design capacity and location of disposal units(s).

Provide design drawings and specifications that include details relative to:

- Treatment and methods (identify locations and equipment used)

- Elevation and grades of final cover
- Management of surface water
- Erosion control
- Revegetation procedures to be used
- Schedule of fillings and dredging
- Monitoring and measuring devices
- Location and limits of area previously filled
- Cross sections indicating the interface details between areas previously filled and areas to be filled
- Limits of construction defined by grid controls
- Borrow areas on-site defined by grid controls (if any)
- Location, description, and purpose of all easements existing on-site and a definition of all title, deed, or usage restrictions relative to the site
- Cross sections shown on the plans and referenced to the grid system for horizontal location
- Grades required for required drainage of the facility
- Cross sections of the access roads and all weather roads, identifying construction materials, slopes, grades, and distances
- Cross sections, grades and/or profiles of surface drainage diversion ditches, capacity and calculations for ditch volume
- Grades indicating the depth of soil available at the site for suitable cover material
- Process and instrumentation diagrams for unit processes to be employed at the facility
- Ground water contour map
- Other drawings, diagrams, or maps as necessary to fully detail the operation of the facility.

- Specifications including, but not limited to, all construction information not shown on the drawings but which is necessary to inform the contractor and EPA in detail of the design requirements as to the quality of materials, workmanship of fabrication of the project, and the type, size, strength, operating characteristics, and ratings of all major mechanical and electrical equipment.

On page 88, the application state, "The facility does not routinely utilize containers, tanks, land treatment or incinerators at the facility. The operation is ... on occasion, however, some type of ... is necessary which utilize tanks, or portable containers as treatment vessels ... During pond cleaning, waste piles and some landfilling may be incorporated at the site for residues." Explain the contain of page 88 in more detail. Note that the Interim status for IT Baker is only for surface impoundments.

II. PART A APPLICATION

The information in the Part A and Part B permit application must be consistent. Submit a revised Part A which addresses the deficiencies noted in the following paragraphs:

- On page 142 of Volume I, the applications states "Maximum inventory at site would be with all ponds full. This would be 95,000,000 gallons." The original Part A application indicates that storage and disposal impoundments with a capacity of 156,000,000 gallons are used to handle hazardous wastes at the facility. Explain the difference in impoundment capacity shown in the Part A and the Part B, and revise the Part A accordingly.

- On page 143 of Volume I, the application states "one of the seven ponds will be selected as the closure pond. The other ponds will be decontaminated by removing waste." The original Part A application indicates that all surface impoundments are used as disposal impoundment. Revise the Part A as necessary.

- The wastes listed in Section IV of form 3 of the original Part A application appear to be the wastes handled at the IT Corporation - Vine Hill facility, rather than the effluents piped from Vine Hill to Baker.

  When revising the list of wastes handled at the facility include only wastes currently regulated by the U.S. EPA. The original Part A included the following wastes stream, which have been deleted or suspended from 40 CFR Part 261:

F017
F018
K063
K074
K075
K078
K079
K080
K081
K082
K086
P055
P090
U013

Numerous wastes containing chlorinated hydrocarbons are identified on the Part A including U226 and U228. However, Part B states that no chlorinated hydrocarbons are accepted at the facility. Clarify this discrepance and amend the Part A if appropriate.

III. GENERAL DESCRIPTION 270.14(b)(1)

A brief general description of the facility addressing new or existing, activities conducted, waste type and quantities stored, treated and/or disposed of must be submitted. Describe type of industries Baker facility serves.

IV. WASTE CHARACTERISTICS AND WASTE ANALYSES PLAN 270.14(b)(2 and 3)

Chemical and Physical Analyses

For each hazardous waste to be stored, treated or disposed of at the facility, describe the waste, the hazardous characteristics, the basis for hazard designation, and provide a laboratory report detailing the chemical and physical analyses of representative sample. In addition, list all incompatible wastes, their resulting reactions and provide the references used to determine incompatability and the reactions.

The analyses may include data developed under Part 261, and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes. You may arrange for the generator of the hazardous wase to supply part or all of the information required under Part 264.13(a)(1).

If the generator does not supply the information, IT Baker is responsible for obtaining the information required to comply with 264.13(a)(1).

Provide further details on which individual types of waste go to which hazardous waste units in what amounts.

Waste Analyses Plan

The waste analyses plan which has bee submitted appears to be the plan for the Vine Hill facility and not the Baker facility.

Provide a copy of the waste analysis plan that describes the methodologies for conducting the analyses required to properly treat, store, or dispose of hazardous wastes. Provide a quality assurance plan which describes the internal quality control checks, preventative maintenance procedures, performance and system audits, and other procedures to ensure that the waste analysis data is accurate, precise and representative.

Additionally, the plan must be amended to address the following deficiencies.

Paramenters and Rationale

List the parameters which will be analyzed for each waste (i.e., flash point, pH, toxic constituents, specific gravity, etc.) received at the Baker facility (including other IT facility). Identify the rationale for selecting specific parameters.

Test Methods

Table I.3.1 on page 93 of Volume I doe not include flash point as a parameter. Since ignitable wastes are handled at the facility, explain the test method used to determine the flash points of ignitable wastes. Test methods must be identified for each parameter specified in the waste analysis plan. Revise Table I in accordance with the changes made to the plan in response to comment under "Parameters and Rationale."

Many of the test methods listed in Table I on page 27 of Volume I are IT Corporation Analytical Methods. Demonstrate that these methods are equivalent to EPA's test methods identified in EPA document SW-846. (See 40 CFR 260.21).

Sampling Methods

Specify the methods to be used to collect representative samples of each waste, including the methods to be used to collect liquid, hetrogeneous, and solids.

Give specific sampling procedures for each in-line process. Include details on sampling equipment, sampling locations, number of samples etc. Describe in full detail Quality Assurance/ Quality Control for waste sampling and analysis in all phases.

Frequency of Analyses

In addition to inspecting each load of incoming waste, identify the frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date.

Additional Requirements for Ignitable, Reactive or Incompatible Wastes

On page 90 of the application it is stated that materials are pumped directly from Vine Hill ponds to Baker without providing analysis.

The analysis plan must detail the procedures used to inspect and/or analyze each hazardous waste movement received at the facility including other IT facilities.

The plan states that samples will be collected and analyzed for "all applicable parameter" and a few examples are given. The waste analysis plan must describe any tests to be conducted on each representative sample to determine its acceptability and the criteria for acceptance. Based on the capabilities and limitations of the intended unit processes, for each waste type and generator, specify how the allowance range of limits for each waste analysis parameter will be set. Identify andy restricted wastes not amenable to treatment. Identify concentration levels of specific constituents which interfere with the treatment process.

Specify the number of samples per waste movement and indicate how discrepancies in volume will be detected. Describe the procedures followed with allowable concentration ranges or volume limits are exceeded.

Additional Pequirements for Ignitable, Reactive or Incompatible Wastes

Describe the methods used to meet additional waste analysis requirements necessary for treating, storaging, or disposing of ignitable reactive or incompatible wastes.

V. SECURITY 270.14(b)(4)

Barrier

Describe in more detail that the fences surround the facility are sufficient to prevent access.

Provide cross section and profile of fence with exact dimensions.

Warning Signs

Show the locations of all warning signs and state the number. Demonstrate that these signs are legible from a distance of at least 25 feet (indicate lettering size). Note that existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

Means to Control Entry

Since facility personnel are not always onsite, demonstrate that the fence and gates are sufficient to prevent access at all times.

VI. INSPECTION 270.14(b)(5)

Provide the inspection schedule, including frequency of inspections and types of problems to be inspected, for the following items (note that the frequency of inspection must be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident):

1. Security devices include fence, gates, warning signs.

2. Personnel protection equipment.

3. Internal and external communication system.

4. Loading/unloading areas (Identify all loading and unloading area).

5. Run-on and run-off control system.

6. Wind dispersal control system.

7. All surface impoundments, including those that are used or to be used for collection and backup.

8. Decontamination equipment.

9. Emergency lighting and power equipment.

10. During impoundment dredging.

11. Pipe from Vine Hill to Baker.

Also, the contingency plan specifies that the safety showers, eyewashes, and scott air pacs will be inspected daily, but these items do not appear on the deily inspection form. Clarify whether these items are inspected daily; if they are not, specify the frequency of inspection.

Surface Impoundment Inspection

Condition Assessment

The section of the application that addressed facility inspections only describe the procedures for initiating corrective actions, and includes copies of the checklists completed during the inspections. Describe how each surface impoundment, while in operation, will be inspected to detect evidence of any of the following:

Overtopping

In addition to the chem/tech daily inspection from and supervisor's weekly report, which indiacate that ponds will be inspected to determine if two feet freeboard is being maintained, describe how inspections will be performed to detect determination, malfunctions, or improper operation of overtopping control system.

Level Drop

While the supervisors weekly report has a section recording freeboard reading, there is no description of any procedure designed to detect a sudden drop in the level of liquid in the ponds.

Describe in full detail the procedure used to detect a sudden drop in the level of the impoundment contents.

Deterioration

Describe the procedures used to inspect for severe erosion leachate seepage, or other signs of deterioration in dikes or other containment devices.

Structure Integrity

Specify the procedure to be followed for assessing the structural integrity of the surface impoundment dike, including that portion of any dike which provides freeboard. These procedures

must demonstrate compliance of the following regulation. Prior to issuance of the permit, and after any extended period of time during which the impoundment was not in service, the owner or operator must obtain a certification from a qualified engineer. The certification must establish that the dikes will withstand the stress of the pressure exerted by the types and amount of wastes to be placed in the impoundment and will not fail due to scouring or piping without dependence on any liner system included in the surface impoundment construction.

VII. PREPAREDNESS AND PREVENTION 270.14(b)(6) and 264 Subpart C

Design and Operation of Facility

The federal regulations require that a hazardous waste facility must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

Provide the information required by the regulation specific to this paragraph or reference where it can be found in your Part B permit application.

Required Equipment

Demonstrate that the facility possesses the equipment listed below. (The location, description, and capabilities of this equipment must be provided in the contingency plan.)

Internal and External Communication

On page 107, the Contingnecy Plan describes that facility personnel will be notified of an emergency via a communications or alarm system. On page 130, the plan specifies that telephones and a radio will be used to notify personnel of an emergency; an alarm system is not described. Clarify whether there is an alarm system at the facility, and if there is, describe it. Also, the plan states the foreman carries a two-way radio. Does the foreman conduct inspections? Is there an alarm system available? Where is the telephone located?

Emergency Equipment

Demonstrate that adequate spill control equipment is available at the facility.

Water and Fire Control

Demonstrate that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.

Aisle Space Requirement

Demonstrate that the facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency. Request for a waiver of the aisle space requirement must be accompanied by a demonstration that aisled space is not needed for any, or all, of these purposes.

Preventative Procedures, Structures, and Equipment

Describe procedures, structures, or equipment used at the facility for the following:

Unloading operations

Describe the procedures, structures or equipment used at the facility to prevent hazards in unloading operations.

Runoff

Prevention of runoff from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding.

Water supply

Describe the procedures, structures or equipment used at the facility for prevention of contaminants of water supplies.

Equipment and power failure

Describe the available equipment or actions taken to provide emergency lighting during power failures.

Personnel protection equipment

Prevention of undue exposure of personnel to hazardous waste.

Precautions to prevent ignition or reaction of ignitable or reactive wastes

Document, identify and describe the sources of ignition

and reaction present, in the vicinity of the hazardous waste facility. Specify the precautions which have been taken to separate and protect ignitable or reactive waste from sources of ignition or reaction located at the facility.

Identify the locations of ignitable and reactive waste at your facility.

General precautions for handling ignitable or reactive waste and mixing of incompatible waste

Describe and document any special procedures used when transporting ignitable or reactive waste across the facility. Describe and document any special procedures used in unloading ignitable or reactive wastes.

Demonstrate and describe precautions taken when treating, storing, or disposing of ignitable or reactive waste, or accidentally mixing incompatible waste on incompatible wastes and other materials, to prevent reaction which:

1. generate extreme heat or pressure, fire or explosions, or violent reaction;

2. produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

3. produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

4. damage the structural integrity of the device(s);

5. by similar means threaten human health or the environment.

Management of ignitable or reactive wastes placed in impoundments

Clearly state whether ignitable or reactive wastes are placed in surface impoundments, and provide a description how the waste will be mixed, treated or otherwise rendered non-reactive.

VIII. CONTINGENCY PLAN 270.14(b)(7)

General Information

Because the Contingency Plan must be distributed to all

outside agencies that may provide assistance to the facility during an emergency, it must be a discrete document independent of the rest of the permit application. Therefore, in addition to the name and location of the facility, the plan must provide, up front, a facility contact and a description of facility operations.

Emergency Coordinators

According to the information on page 105 of Volume I, the three persons identified as emergency coordinators are stationed at Vine Hill. The procedures for alerting the fire department, however, specify that the emergency coordinator preferably will be an on-site management person. Clarify this apparent contradiction.

Notification

The contingency plan specifies that facility personnel are to be notified of an emergency via the communications or alarm systems. However, the plan does not describe an alarm system and does not specify the communications equipment carried by personnel other than the foreman. Describe the method for immediate notification of facility personnel and necessary state or local agencies.

Identification of Hazardous Materials

On page 107 (items 3 and 4), the contingency plan states that facility records will be used to identify the wastes involved in an emergency and to assess possible hazards. Describe the types of records that are available for this purpose. Describe procedures for identification of hazardous materials involved in the emergency. Describe methods and records available to determine exactly what wastes are in each pond.

Control Procedures

Specify control procedures to be taken in the event of a fire, explosion, or release of hazardous waste or to contain spilled material until a vacuum truck truck arrives. Specify the procedures to be followed for containing, absorbing, and removing spilled wastes when a vacuum truck cannot be used.

Prevention of Recurrence or Spread of Fires, Explosions, or Releases

On page 107 of Volume I (Item 6), the Contingency Plan states that measures will be taken to prevent the spread or recurrence of fires, releases and explosions of hazardous wastes. Describe in detail the specific actions to be taken.

Storage and Treatment of Release Material

On page 107 of Volume I (item 8), the Contingency Plan states that the treatment, storage, or disposal of recovered waste will be provided for after the emergency. Describe the steps to be taken in managing waste affected by the emergency. Also, specify how surrounding areas will be decontaminated, as well as how contaminated soil or debris will be managed.

Emergency Equipment

Provide a physical description of each item on the list of emergency equipment, and outline the capabilities of each item. The list must include the following items:

1. Communication or alarm systems,
2. Personnel protection equipment,
3. Spill control equipment,
4. Decontamination equipment,
5. First aid kit.

Also specify the location of the spill control and personnel protection equipment.

Post-Emergency Equipment Maintenance

Describe the procedures to be used to ensure that all emergency equipment are cleaned and fit for its intended use before operations are resumed.

Emergency Repairs

On page 131 of Volume I, the Contingency Plan simply repeats portions of 40 CFR 264.227(b). Provide a detailed description of how you will accomplish each of the identified emergency actions. This description must include the following:

1. Procedures for stopping waste additions at the impoundment,
2. Procedures for containing any leakage,
3. Procedures for stopping the leak,
4. Procedures to stop or prevent catastrophic failure,
5. Procedures for emptying the impoundments(s).

Certification

Specify the procedures which will be followed for recertifying the dike's structural integrity, in the event the impoundment is removed from service as a result of actual or imminent dike failure.

Repairs as a Result of Sudden Drop

Specify the procedures which will be followed in the event the impoundment is removed from service as the result of a sudden drop in the liquid level.

Note that regulations require that a liner be installed in compliance with Part 264.221(a) or 264.222.

Coordination Agreements

Describe the coordination agreements with local police and fire departments, hospitals, contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency. Document refusal to enter into a coordination agreement.

Evacuation Plan

Describe the signals to be used to commence an evacuation. In addition, provide alternate evacuation routes in case primary exit routes are blocked. The plan must also describe the "safe assembly areas" to be used to account for all evacuated personnel.

Required Reports

The emergency incident report must include the extent of injuries. Revise the list of topics to be addressed (page 109, Item 4) to include this item.

IX. TRAINING 270.14(b)(12)

Job Title/Job Description

Provide a job description for each position at the facility related to hazardous waste management.

Training Content, Frequency, and Techniques

Provide an outline of the topics covered in each segment of the "new hire" and continuing training. Specify the training techniques used (classroom, on-the-job, or both).

Describe the content of training provided to the General Manager, Site Manager, Site Supervisors, Senior Operations Clerk, Purchaser/Inventory Clerk, and General Operator Foreman. Specify the frequency of training provided to these persons and the training techniques used.

Training Director

Demonstrate that the training director has training or experience in hazardous waste management and emergency response.

Relevance of Training to Job Position

Demonstrate that facility personnel are instructed in hazardous waste management procedures (including contingency plan implementation) relevant to their positions.

Training for Emergency Response

Provide additional detail about the training program to show that all site personnel will receive emergency training in the following areas:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
- Key parameters for automatic waste feed cut-off systems (if appropriate)
- Communications or alarm systems
- Response to fires or explosions
- Response to groundwater contamination
- Shutdown of operations.

Implementation of Training Program

Demonstrate that all current IT-Baker employees have successfully completed "new hire" and continuing training.

X. TRAFFIC INFORMATION 270.14(b)(10)

The traffic information provided with your Part B application does not address the potential impact of traffic on-site the facility. Describe the traffic pattern, type of vehicles, load bearing capacity for the on-site roadways. Show the location, cross section, and profile of all on-site roadways on design and topographical drawings.

XI. GENERAL REQUIREMENTS 270.14(b)(19 and 20)

The topographic maps provided in your Part B application are incomplete. Appropriate information must be shown within the facility and for a distance of 1000 feet around it at a scale of 1 inch (2.5 centimeters) equal to not more than 200 feet (61.0 meters). The topographic map(s) must clearly show the following:

1. Map scale and date.
2. Surface water including intermittent streams.
3. Surrounding land uses (residential, commercial, agricultural, recreational, etc.).
4. A wind rose (prevailing wind speed, direction, and location).
5. Orientation of the map (north arrow; indicate if true north or magnetic north).
6. Legal boundaries of the hazardous waste management area, property boundary, and the Proposed Point of Compliance.
7. Access control (fences, gates).
8. Injection and withdrawal wells both on-site and off-site.
9. Buildings; treatment, storage, or disposal operations; or other structure such as:
   a. Run-off and run-on control system.
   b. Internal roads (main on-site roadways, secondary access roads and infrequently used roadway).
   c. Storm, sanitary, and process sewerage systems.
   d. Loading and unloading areas.
   e. Fire control facilities.
10. Barriers for drainage or flood control.
11. Location of operational units within the hazardous waste facility site where hazardous waste is treated, stored, or disposed (include equipment clean up areas).

The topographic map must also indicate the following (additional requirements for land disposal facilities 270.14(c)(3), 270.14(c)(4), 264.95, 265.97):

1. Proposed ground water monitoring well location(s).

2. The location of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility (including flow direction and rate).

3. Extent of any plume of contamination that has entered the ground water from a regulated unit.

XII. FLOOD PLAIN STANDARD 270.14(b)(11)

Provide the information required by the regulation specific to the following paragraphs or reference where it can be found in your Part B permit application.

For facilities located within the 100-year floodplain, the application must describe how the facility is designed, constructed, operated and maintained to prevent washout of any hazardous waste during a flood, by addressing 270.14(b)(11)(iv)(A) or (B), or if applicable; 270.14(b)(11)(iv)(C).

Flood Proofing and Flood Protection Measures

The application must provide a structural or other engineering study showing how the design of the hazardous waste units and the flood proofing and protection devices at the facility will prevent washout.

Flood Plan

The procedures that will be followed to remove hazardous wastes to safety before the facility is flooded must be described to include flood level, estimated time to remove the waste, the location to which the wastes will be moved (including a demonstration that the facilities at that location will be eligible to receive the hazardous wastes), the planned procedures, equipment and personnel to be used, and a discussion of the potential for accidental discharge of the waste during movement.

Waiver for Land Storage and Disposal Facilities

If a waiver from the flood plain standard is requested, IT Baker must demonstrate that there will be no adverse effects on human health or the environment if washout occurs. The following factor must be considered in this demonstration:

1. The volume and physical and chemical characteristics of the waste.

2. The concentration of hazardous waste constituents that would potentially affect surface waters.

3. The impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters.

4. The impact of hazardous waste constituents on the sediments of affected surface waters or the soils on the sediments of affected surface waters or the soils of the 100-year floodplain.

5. Plan for Compliance with Floodplain Standards

For facilities located within the 100-year flood plain that do not comply with the flood plain standard, show how and when the facility will be brought into compliance.

XII. GROUNDWATER MONITORING 270.14(c) amd 264 Subpart F

Exemption from ground water protection requirements: 270.14(c), 264.90(c).

No material is provided with this submission that addresses the standard for exemption from ground water monitoring defined in 40 CFR 264.90(b)(4).

Interim Status Period Groundwater Monitoring

Applicable interim status period data (265.92(b)) from the monitoring wells are not available with this submission. The application is deficient without these data.

In addition Baker has groundwater monitoring programs that do not comply with either 40 CFR 264 or 265. The applicant must immediately implement the interim status period groundwater monitoring program in compliance with 265 Subpart F standards for first year reporting.

Groundwater Monitoring Program

In addition to implementation of an Interim Status Period Groundwater Monitoring Program, the applicant must comply with the General Groundwater Monitoring Requirements listed under Subpart F of 264.97. The applicant must satisfy the requirements of this subpart to provide the basis for selection of the groundwater monitoring response program and protection standard applicable to this facility (Subpart F of 264.98 or 264.99, or 264.100).

The groundwater monitoring program has been reviewed and deficiencies noted in the comments below:

Groundwater Monitoring System

Identify which wells are upgradient and which wells are downgradient.

For upgradient wells, demonstrate that their number, locations, and depths are sufficient to yield ground-water samples that are representative of background groundwater quality in the uppermost aquifer and not affected by the facility. For downgradient wells demonstrate that their number, locations, and depths are sufficent to immediately detect any statistically significant amount of hazardous waste or hazardous waste constitutent that migrate from the waste management area to the uppermost aquifer and represent the quality of ground water passing the Point of Compliance. (Attachment No. 8 includes groundwater contour map. This map is based on extrapolation between widely scattered points of known groundwater elevation and may not be indicative of the actual flow directions. However due to the hydrogeologic setting it appears that there is no upgradient area. Therefore additional investigation should be be done to confirm this. Note that when constructing a ground water contour map you should use data from wells that are in the same formation and are hydrolically connected (see boring logs Nos. 9, 10, 11, 17, 7, and 6 as compare with rest of the boring logs)).

Description of Wells

For existing and proposed monitoring wells submit design features and construction procedures for each monitoring well, including drilling and sampling methods, well development procedures and method for sealing the annular space around the filter pack around the outside of the well screen.

Background Values

Initial background concentrations or values of all parameters must be estabilshed. The applicant must accomplish this through the first year quarterly sampling under the interim program. In addition you must satisfy the following:

For each of the indicator parameters, at least four replicate measurements must be obtained for each sample. The initial background arithmetic mean and variance must be determined by pooling the replicate measurements for the respective parameter concentrations or values separately in each sample obtained from upgradient monitoring locations during the first year.

In developing the data base used to determine a background value for each parameter or constituent, you must take a minimum of one sample from each well and a minimum of four samples from the entire system used to determine background groundwater quality

each time the system is sampled. You must show the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant differences.

Sampling and Analytical Procedures

Describe the actual analytical technique that will be used for each monitoring parameter from the most recent edition of Test Methods for the Evaluation of Solid Waste Physical/Chemical Methods (SW-846).

The type of pump which the applicant proposes to use to collect analytical samples from the wells must be specified. Specify the procedures to be followed in preventing cross-contamination of samples during sample collection such as washing down bailers and pumps with distilled water prior to each use. You must demonstrate that each monitoring well will be flushed prior to sampling to remove stagnent water contained in the well casing. The technique to flush or purge the monitoring well will be dependent on the well diameter, depth and equipment available. A minimum of two well volumes of water contained in the well must be removed when bailing before initiating sampling.

Chain of Custody

Specify the chain of custody procedures to be followed during ground water monitoring. In addition to specifying that records will be kept of time and date of sampling and sample arrival at the laboratory and names of personnel collecting and delivering the samples, you must specify that the sample containers will be sealed and that chain of custody records will accompany the samples, and that the sample containers will be kept in the physical possession of the sample custodian or stored in a locked place at all times until delivery to the laboratory. Basic guidelines for chain of custody procedures are contained in "Manual of Ground Water Sampling Procedures" (EPA 1981), and "Handbook for Analytical Quality Control in Water and Wastewater Laboratories" (EPA-600/4-79-019, 1979).

Groundwater Elevations

Describe the procedure which has been used in the past and will be used in the future to determine the groundwater elevation prior to sampling at monitoring wells.

Aquifer Identification

Identify the uppermost aquifer and aquifer hydraulically interconnected beneath the facility property, including groundwater flow direction and rate and basis for such identification.

Contaminant Plume Description

Once the interim status groundwater monitoring program (265 Subpart F) is implemented and interim status groundwater monitoring data becomes available, you are required to provide a description of any plume of contamination that has entered the groundwater from regulated units. The rate and extent of groundwater contamination must be identified vertically and horizontally and delineated on a topographic map. In addition, the nature of any identified groundwater contamination must be provided by indicating the concentrations of Part 261, Appendix VIII constituents at each monitoring well and monitor point.

Locations of Background Groundwater Monitoring Wells that are not Upgradient

The application does not specifiy which wells are upgradient or which wells are downgradient, nor does it delineate the waste management area. For wells that are not located upgradient from the waste management area, demonstrate either that the hydrogeologic conditions do not allow determination that the wells are upgradient, or that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

Detection Monitoring Program

The requirements of a detection monitoring program cannot be evaluated until the comments under 270.14(c)(1), 265.90-265.94, 270.14(c)(5), 264.97, 265.91(c), 264.97(a) and (c), 265.92(c), 264.97(a)(1) and (2), 264.97(d) and (e), 265.92(a), 264.97(d)(4), 265.92(a)(4), 265.97(f), 265.92(e), 270.14(c)(2), 270.14(c)(4), and Part 261, Appendix VIII are fulfilled. It will then be possible to determine which of the three types of monitoring programs described under Part 264, Subpart F is applicable to the subject facility.

In the meantime, however, you must provide a list of proposed parameters for use in a Part B monitoring program which include specific hazardous constituents (chemical compounds) and/or their reaction products likely to be present in the groundwater and which may have originated from wastes. In developing this list, the following items must be considered:

- The nature of the wastes managed at the facility must be reviewed to determine which constituents (and any reaction products if this chemical process is understood) are relatively mobile and persistent. The results of this review must be submitted along with the list of monitoring parameters.

- The effects of the unsaturated zone (if present) beneath the facility on the mobility, stability and persistence of the waste constituents.
- The detectability of the parameters.
- The concentrations and coefficients of variability of the proposed parameters in background groundwater quality.

XIV. SURFACE IMPOUNDMENTS 270.17

The Part A application indicates that surface impoundments with capacities of 156 million gallons are used to store and dispose of hazardous waste at IT Baker. However from the Part B application it is difficult to determine the process design capacities. Provide detailed information to show how the capacities for surface impoundments were arrived at by showing all calculations and supportive drawings. For each surface impoundment provide detailed plans and show the configuration (depth, surface area, interior/ exterior side slope and volume), vertical and horizontal location, and sufficient cross sections. Provide cross sections indicating the interface details between surface impoundments.

Note that the horizontal location must be tied to a permanent physical marker located on-site and indicated on the design plans, the vertical control must be tied to the elevation of the permanent marker.

Provide detailed information (including design drawings, cross sections, etc.) regarding Vine Hill/Baker Pipeline and Baker receiving pond(s) or unit(s) (pipe's discharge location(s)).

List of Waste

For each surface impoundment provide a list of all hazardous wastes placed or to be placed in surface impoundments. Include wastes that are directly discharged and wastes that are treated in any way before discharge to each surface impoundments. Give the EPA hazardous waste number and waste description of the original waste and then describe how the waste has been altered by treatment.

Prevention of Overtopping

Describe the design and/or operating procedures that will provide protection against impoundment overtopping/overflow.

Design Features

Describe the design features utilized to prevent overtopping, such as:

- Spillways or weirs;
- Automatic or manual controls; and
- Sensors and alarms.

Operating Procedure

If operating procedures are instrumental to preventing overtopping, provide a description of those procedures.

Water Balance Study

Unless foolproof controls such as weirs are employed to prevent overtopping, provide the results or water balance studies showing that adequate freeboard will be available following a 100-year 24-hour storm.

Freeboard Requirements

Freeboard requirements associated with normal and extreme wind activity should be determined unless automatic controls are utilized and freeboard equals or exceeds two feet.

Outflow Destination

Describe the fate of liquids released through flow control devices. Identify the location to which wastes would be moved in the event of an emergency.

Engineer's Certification

Provide written certication by a qualified engineer attesting to the structural integrity of all dikes. For new units. submit a statement from a qualified engineer that such a certification will be provided upon completion of the new dikes.

Dike Design Description

Provide data and/or drawings specifying design layout of the dikes and their components including materials of construction. Determine the capability of the dikes to withstand failure from expected static and dynamic loadings and the effects of erosion.

Erosion Protection

Provide demonstration that dikes are designed and constructed to minimize erosion and prevent failure due to excessive erosion. These demonstrations should consider the erosion potential from rainfall, surface water run-off, any contact between impounded wastes and the dikes, and potential leakage through the dikes. Describe procedures for correcting erosion problems identified during the unit's operating life.

Subsurface Soil Conditions

The engineering characteristics of the dike foundation materials should be verified through testing and subsurface explorations, as necessary. These explorations may include:

- Test borings;
- Test pits or trenches;
- In site tests; and
- Geophysical exploration methods.

Stability Analysis

Provide a description of, and the results from, stability analysis for the following conditions, as apropriate:

- Foundation soil bearing failure or settlement;
- Failure in the dike slopes;
- Build-up of hydrostatic pressure due to failure of drainage system, dike cover, and liner; and
- Rapid drawdown.

Strength and Compressibilty Test Results

Provide results or strength and compressibility tests on the dike materials together with a description of the sampling procedures and test methods.

XV. CLOSURE PLAN /POST-CLOSURE PLAN 270.14(b)(13)

Closure performance standard

In preparing the closure and post-closure plan you must address in detailed how the facility will be closed and how closure minimizes the need for further maintenance and controls, minimizes or eliminates to the extent necessary to protect human health and the environment post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground water, or surface waters, or to the atmosphere. To meet these objectives you most develop as part of closure/post closure plan an adequate analysis of the effectiveness of the proposed closure and postclosure procedures.

Partial and final closure activities

The regulations require that an owner or operator include in his closure plan a description of how and when the facility will be partially closed and ultimately closed. Describe filling schedules and provide drawings to show the sequence and locations of filling for entire site. All partial closure activities must be in

accordance with the closure regulations and included in the closure plan. You must also describe the activities required to close the maximum area open at any given time.

Maximum waste inventory

Review the estimate of the maximum waste inventory to determine whether it represents the inventory in storage and treatment rather than inventory already disposed.

Inventory is defined as all undisposed hazardous wastes at all stages of processing, and residues from the actual processes involved with the facility's operations. For purpose of the closure plan, the maximum closure inventory is a hypothetical inventory of the maximum amount of waste in storage or treatment at anytime during the life of the facility, including all inventory that will likely accumulate under normal conditions.

In developing an estimate of maximum inventory ever on-site over the life of the facility, you must take into account expected periodic accumulations of inventory and predictable events that will likely affect operating procedures over the life of the facility (for example you may, as part of routine operations, cyclically accumulate inventory over a certain period and then work it off. The estimate of the maximum amount ever on-site, in this case, would be the maximum amount ever accumulated. This estimate should also incorporate inventory that will likely accumulate as a result of predictable conditions, such as adverse weather conditions, which affect landfilling activities.)

For surface impoundments the maximum inventory includes the maximum amount of hazardous wastes in the surface impoundments. The plan must include a description of when, how, and where the wastes ultimately will be treated or disposed.

Schedule for closure/extensions for closure time

The expected closure date specified in the closure plan is 30 years. Provide the basis of this estimate.

It is also stated that total time required to close the facility is probably 18 months and worst case time to close is 36 months.

Submit a justification for a schedule for closure which exceeds the 90 days for treatment removal or disposal of wastes and/or the 180 days for completion of closure activities.

Inventory Removal, Disposal or Decontamination of Equipment:

The plan must describe in detail how the hazardous waste inventory will be removed from the site or treated on-site to render it non-hazardous, and how all facility equipment and structures will be

decontaminated or disposed of when closure is completed. The decontamination steps should include the removal of contaminated soil and the cleaning of structures, emergency and safety equipment, etc. Specify the criteria and procedures you will use to determine whether decontamination has been effective. The closure plan should include a soil sampling and analysis plan designed to detect soil contamintion. The soil sampling plan should include:

- Number of samples.
- Method of locating samples.
- Depth of samples and provisions for going deeper if necessary.
- Size and location of samples.
- Sample compositing method if any.
- Specific analysis methods.
- Provisions for background determination (uncontaminated soil sampling and analysis).

Closure of Surface Impoundments

Describe how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste. If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the surface impoundment as a disposal unit and provide post-closure plans. Surface impoundments without liners or with liners that do not meet the requirements 264.221(a) must also provide contingent plans for closure as disposal units and contingent post-closure plans, except impondments requesting a liner exemption in accordance with 264.221(b).

Identify the surface impoundments in which wastes will be removed from the impoundments at closure and provide the following information:

I. FACILITY CONDITIONS

A. General information for each surface impoundment

1. Size of impoundment facility (include reference map)

2. Volume of impoundment

3. Type of treatment

4. Copy of NPDES water pollution control permit if you discharge through a point source to U.S. waters

5. Schedule of dredging

   a. Volume of waste dredged

   b. Frequency of dredging

   c. Procedures for dredging

   d. Method of disposal of dredged materials

B. Schedule of partial closures for each surface impoundment and location(s)

   1. Size of each area partially closed

   2. Methods for partial closure (cover or removal of wastes)

   3. Maintenance of partially closed areas

C. Maximum amount of waste ever on-site in any stage of processing

   1. Maximum volume of waste in impoundment

   2. Maximum volume of waste in storage awaiting impoundment

D. Inventory of auxilliary equipment

E. Schedule of final closure for each surface impoundment

   1. Final date wastes accepted

   2. Date all treatment completed

   3. Date all free liquids removed

   4. Date all sludges removed

   5. Final date of completed closure for each surface impoundments

   6. Total time required to close each surface impoundments

II. REMOVING ALL INVENTORY

A. Maximum amount of waste on-site in any stage of processing awaiting impoundment

   1. Total amount of wastes in drums and number of drums in storage, if applicable

   2. Volume of bulk wastes in any stage of processing including storage

3. Total amount of residues from processing

4. Maximum quantity of liquid in impoundment

5. Maximum quantity of sludge in impoundment

B. Procedures for treating or disposing of inventory, including free liquids, on-site

1. Amount of inventory treated on-site

2. Method of treatment (e.g., package treatment facility, evaporation, biological treatment)

3. Method of discharge or disposal, if disposed in a landfill on-site

4. Time estimate for treatment

C. Procedures for removal of all liquids not treated and disposed on-site

1. Quantity of liquids not treated and discharged on-site

2. Method of off-site treatment or disposal

3. Approximate distance to off-site TSDF

D. Removing sludge

1. Volume of sludge to be removed

2. Method for removing sludge and residuals

a. Is equipment on-site or rental required?

b. Owner or operator labor or contractor?

3. Treating sludge

a. If treatment is performed on-site, describe treatment

b. Stablizing sludge

(1) Type of building agent used

(2) Amount of bulking agent required

(3) Source of material

(4) Equipment required

(5) Availability of equipment

4. Disposing of sludge

a. If on-site disposal, provide map of disposal location

(1) Quantity disposed on-site

(2) Size of area needed for disposal

(3) Procedures for disposal

b. If off-site treatment or disposal

(1) Quantity removed to an off-site TSDF

(2) Method of treatment or disposal (e.g., landfill, etc.)

(3) Approximate distance to TSDF

III. DECONTAMINATING THE SURFACE IMPOUNDMENT

A. Area with potential soil contamination (sq. yd.)

1. List areas with potential contaminated soil

a. Number of soil samples, if necessary

b. Criteria for determining contamination

2. Estimated depth of soil requiring removal

3. Total amount of contaminated soil (cu. yd.)

a. Amount of contaminated soil disposed on-site

(1) Method of disposal

(2) Construction required if applicable

(3) Size, location and design of on-site disposal method

b. Amount of contaminated soil disposed off-site

B. Equipment and/or facilities (e.g., tanks, basins, earthmoving equipment, piping and containers) requiring decontamination

1. Name each piece of equipment and/or storage facilities and procedures for cleaning (e.g., steam cleaning, hydroblasting, etc.)

   a. Owner or operator labor or contractor

   b. Quantity of residues from cleaning

2. Number of containers to be disposed or decontaminated

   a. Method of cleaning and/or disposing of containers

   b. Volume of residues

3. Method for disposing of residues form decontamination (including wastewater and liquid wastes)

   a. Quantity managed on-site

      (1) Method of treatment or disposal method

      (2) Size, location and design of on-site disposal method

      (3) Disposal plans for liquid waste

   b. Quantity disposed off-site

4. Estimated amount of water on-site requiring removal (e.g., snow and rain accumlation)

   a. Methods for removal

   b. Source of treatment or disposal (on-site versus off-site)

      (1) If on-site, describe procedures

- Identify surface impoundments in which waste remain in the impoundments after closure and provide following information:

I. FACILITY CONDITIONS

   A. General information

      1. Size of impoundment facility (include reference map)

      2. Volume of impoundment

      3. Type of treatment

4. Copy of NPDES water pollution control permit if you discharge through a point source to U.S. Waters

5. Schedule of dredging

   a. Volume of waste dredged

   b. Frequency of dredging

   c. Procedures for dredging

   d. Method of disposal of dredged materials

B. Schedule of partial closures, if applicable

   1. Size of each area partially closed

   2. Methods for partial closure (removal of wastes or cover)

   3. Maintenance of partially closed areas

C. Maximum amount of waste ever on-site in any stage of processing

   1. Maximum volume of waste in impoundment

   2. Maximum volume of waste in storage awaiting impoundment

D. Inventory of auxiliary equipment

E. Schedule of final closure (milestone chart)

   1. Final date wastes accepted

   2. Date all treatment completed

   3. Date all free liquids removed

   4. Date final cover completed

   5. Final date vegetative cover planted or other material placed

   6. Final date closure completed

   7. Total time required to close each surface impoundment

II. REMOVING ALL INVENTORY

A. Maximum amount of waste on-site in any stage of processing awaiting impoundment

1. Total amount of wastes in drums and number of drums in storage, if applicable

2. Volume of bulk wastes in any stage of processing including storage

3. Total amount of residues from processing

4. Maximum quantity of liquid in impoundment

B. Procedures for treating of disposing of inventory, including free liquids, on-site.

Describe the methods to be used to stabilize remaining wastes to support the final cover, including:

- Stabilization methods, equipment and materials
- Required bearing strength of stabilized waste
- Demonstration of stabilized waste bearing strength
- Methods for bearing strength determination during closure

1. Amount of inventory treated on-site

2. Method of treatment (e.g., package treatment facility, evaporation, biological treatment)

3. Method of discharge of disposal

4. Time estimate for treatment or disposal, if disposed of in a landfill on-site

C. Method of stabilizing sludge

1. Type of bulking agent used

2. Amount of bulking agent required

3. Source of material

4. Equipment rquired for stabilizing sludge

5. Availability of equipment

D. Sludge disposal, if applicable

1. Quantity of sludge to be disposed

2. Procedures for sludge dispsal

   a. State if disposed in another section of impoundment

   b. If disposed on-site in landfill, describe procedures

   c. If removed to an off-site TSDF

      (1) Method of treatment or disposal

      (2) Approximate distance to TSDF

E. Procedures for off-site treatment or removal of inventory

   1. Quantity of wastes removed to an off-site TSDF

   2. Method of off-site treatment or disposal

   3. Approximate distance to TSDF

III. DECONTAMINATING THE FACILITY

A. Area of facility with potential soil contamination (sq. yd.)

   1. List areas with potential contaminated soil

      a. Number of soil samples, if necessary

      b. Criteria for determining contamination

   2. Estimated depth of soil requiring removal

   3. Total amount of contaminated soil (cu. yd.)

      a. Amount of contaminated soil disposed on-site

      b. Amount of contaminated soil disposed off-site

B. All equipment and/or facilities (e.g., tank, earth-moving equipment, piping and ocntainers) requiring decontamination

   1. Name each piece of equipment and/or storage facilities and procedures for cleaning (e.g., steam cleaning, hydroblasting, etc.)

      a. Owner or operator labor or contractor

      b. Quantity of residues from cleaning

   2. Number of containers requiring disposal or decontamination

a. Method of cleaning and/or disposing of containers

b. Volume of residues

3. Method for treating or disposing of residues from decontamination (including wastewater and liquid wastes)

a. Quantity disposed on-site

(1) Plans for disposing of liquid waste

(2) Give size, location, design

4. Estimated amount of water on-site requiring removal (e.g., rain accumulation)

a. Methods for removal

b. Source of disposal (on-site versus off-site)

(1) If on-site disposal area

(a) Describe the procedures

Cover Design for Disposal Units

All units in which wastes or contaminated materials are to remain at closure must describe how the unit will be closed, including a description of the final cover to be established and its expected performance.

For cover design provide the following information:

- Drawings showing cover layers, thickness, slopes and overall dimensions.
- The common name, species and variety of proposed cover crop.
- Descriptions of synthetic liners to be used, including chemical properties, strength, thickness and manufacturer's specifications.
- Description of rationale for cover selection.
- Descriptions of and specifications for protective materials placed above and below synthetic liners.

- Clay liner characteristics, including thickness and permeability.

  Note that you must demonstrate that the cover system will have a permeability less than or equal to that of the liner system, therefore you must provide details of the existing liner in order to assess its permeability.

- Clay liner construction plans including lift sequencing.

- Provide engineering calculations showing the proposed cover will provide long-term minimization of liquid migration through the cover.

- Demonstrate that the cover system will function effectively with minimum maintenance needs.

- Data demonstrating that the proposed final slopes will not cause significant cover erosion.

- Descriptions of drainage materials and their permeabilities.

- Engineering calculations demonstrating free drainage of precipitation off of and out of the cover.

- Estimation of the potential for drainage-layer clogging.

- Describe potential cover settlement and subsidence, cosidering immediate settlement, primary consolidation, secondary consolidation, and creep and liquefaction.

- Potential foundation compression.

- Potential soil liner compression.

- Potential waste consolidation and compression resulting from waste dewatering, biological oxidation and chemical conversion of solids to liquids.

- Descibe the effects of potential subsidence/settlement on the ability of the final cover to minimize infiltration.

- Demonstrate that the cover system will have a permeabilty less than or equal to that of the liner system.

- Identify the average depth of frost penetration and describe the effects of freeze/thaw cycles on the cover.

Also provide the following information for cover and vegetation at closure:

A. Final cover

1. Total area to be covered (sq. yd.)

a. Area of facility not previously partially closed with appropriate cover

b. Area of any portions of facility open for disposing of inventory and wastes from decontamination

2. Characteristics of final cover

a. Type(s) of material(s)

b. Depth of material(s)

c. Total amount of material(s) required

d. Amount and type of soil additives, if applicable

e. Source of material(s)

(1) Quantity available on-site

(a) Excavation required

(b) Approximate hauling distance

(2) Amount purchased off-site

(a) Approximate hauling distance

3. Final cover design

a. Slope of cover

b. Length of run of slope

c. Type of drainage and diversion structures

4. Earth-moving procedures

a. Contractor or owner or operator to lay cover?

b. Equipment needed for hauling, spreading, grading, compacting

c. Available on-site or rental?

B. Vegetation

1. Total area requiring vegetation (acres)

a. Area receiving final cover which will have vegetation (acres)

b. Area partially closed but never vegetated (acres)

c. Area previously vegetated but requiring some replanting (acres)

d. Percentage of total area assumed to require replanting during closure (%) (acres)

2. Characteristics of vegetation

a. Name or type of vegetation (e.g., rye grass)

b. Climatic, soil and maintenance requirements (e.g., temperature, moisture and nutrients requirements, replanting frequency)

c. Root structure (expected penetration depth of roots)

3. Soil preparation procedures

a. Type and quantity of fertilizer required per acre; total required

b. Quantity of seed required per acre; total required

c. Type and quantity of mulch required per acre; total required

d. Contractor labor or owner or operator labor?

4. Procedures for controlling other erosion if vegetation is not to be planted

a. Type and quantity of materials to be used

b. Justification for materials chosen

Ground-Water Montoring For Disposal Unit(s)

A. Analyses required during closure

1. Details of ground-water monitoring program (include copy of ground-water sampling and analysis program when available)

B. Maintenance of monitoring equipment

1. Number of wells requiring redrilling

2. Number of wells requiring replacement

3. Need for replacement parts to system (name parts, e.g., pumps, seals, caps)

4. Required routine maintenance

Closure Certification for All Units

A. Approximate number or schedule of periodic inspections expected by the certifying professional engineer

Collecting, Removing and Treating Leachate

A. Describe your leachate collection system (i.e., pumping and collecting procedures)

1. Describe the monitoring sysem

2. Estimated volume of leachate collected per month

B. Describe leachate treatment process

1. Is treatment on-site or off-site? If on-site treatment, describe process for treatment

a. Design objectives

b. Materials and equipment required

C. Disposing of leachate

1. If discharged to public waters, provide a copy of NPDES Permit

2. If hauling off-site, distance to TSDF

3. Disposing of residuals

a. Quantity of residuals

b. Characteristics

c. If disposed on-site, where? (include drawing of disposal area)

D. Maintaining equipment

1. Repairs and replacements required

2. Regular maintenance required over the duration of closure

Gas Collection

If a gas collection system is required at your facility, complete this section.

A. Procedures for collecting gas

1. Design objectives of system

2. Materials and equipment required

B. Monitoring requirements

1. Type of monitoring samples

2. Number of samples

3. Type of analysis

4. Where are analyses performed?

C. Maintenance of monitoring equipment

1. Repairs required during closure

2. Replacements required during closure

3. Routine maintenance required during the closure period

Installing or Maintaining the Fence

A. If a fence already exists at your facility, describe required maintenance at closure to ensure it is in good condition.

B. If fence is to be installed:

1. Area to be enclosed

2. Type of materials used

3. Dimensions of fence

Notice in Deed

Existing facilities must submit a copy of the Notice of Notation recorded in the deed to the facility property, or on some other instrument which is normally examined during title search that will in prepetuity notify any potential purchaser of the property

that (1) the land has been used to manage hazardous wastes; (2) its use is restricted; and (3) the survey plot and record of the type, location, and quantity of hazardous waste disposed of within each cell or area of the facility has been filed with jurisdiction over local land use and with the Regional Administrator of the U.S. Environmental Protection Agency.

Notice to Local Land Authority

Within 90 days after closure is completed the owner or operator of a disposal facility must submit to the local zoning authority and the Regional Administrator a survey plot indicating the location and dimenision of landfill cells or other disposal areas with respect to permanently surveyed bench marks.

Describe in full detail how will you achieve this.

Post-Closure Plans

Owners or operators of waste piles, surface impoundments or disposal facilities need to submit a post-closure plan. The post-closure plan shall identify the activities that will be carried on for 30 years after closure, and the frequency of these activities. In addition, the name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period shall be included. Activities to be included in the post-closure plans are:

Inspections to be conducted during the post-closure care period, their frequency, the inspection procedure, and the logs to be kept. The following items, as applicable should be included in the inspection plan:

- Security control devices
- Erosion damage
- Cover settlement, subsidence and displacement
- Vegetative cover condition
- Integrity of run-on control measures
- Cover drainage system functioning
- Leak detection system
- Leachate collection and removal system
- Well condition
- Bench mark integrity

The rationale for determining the length of time between inspections should be provided.

Monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting the following operations and evaluating the data gathered:

- Groundwater monitoring
- Leachate collection and removal
- Leak detection between liners

Preventative and corrective maintenance procedures, equipment requirements and material needs. Include the following items in the maintenance plan as applicable:

- Repair of security control devices
- Erosion damage repair
- Correction of settlement, subsidence and displacement cover maintenance
- Repair of run-on and run-off control structures
- Leachate removal system maintenance
- Well replacement

Describe the rationale to be used to determine the need for corrective maintenance activities.

Also provide following information for Post-Closure activities:

I. GROUND-WATER MONITORING (include copy of ground-water sampling and analysis program, when available)

A. Number, location and depth of wells to be monitored during post-closure

B. Frequency of monitoring of these wells

C. Analyses required annually during post-closure

1. Types of analyses required

2. Procedures for monitoring and analyses

II. MAINTENANCE ACTIVITIES

A. Facility inspections

1. List all structures and facilities to be inspected

2. Frequency of inspections for each

B. Maintaining cover and/or vegetation

1. Cover maintenance activities and schedule

2. Mowing schedule

3. Reseeding and mulching schedule

4. Soil replacement

   a. Labor requirements

   b. Soil requirements

5. Fertilizing schedule

6. Sprinkling schedule

7. Rodent and insect control program

C. Controlling erosion

1. Maintenance program for drainage and diversion system

   a. Anticipated labor requirements

   b. Anticipated soil requirements

2. Activities required to repair expected erosive damage

   a. Anticipated labor requirements

   b. Anticipated soil requirements

3. Replacement of cover soil

   a. Amount to be stored on-site during the post-closure period

   b. Specification of alternative sources of cover soil, if applicable (i.e., off-site purchage agreement or onsite excavation)

D. Maintenance of ground-water monitoring system

1. Number of wells requiring redrilling during the 30-year post-closure period

2. Number of wells requiring replacement during the 30-year post-closure period

3. Annual routine equipment maintenance (e.g., replacement of seals and caps, grouting)

E. Planned responses to probable occurrences (including those listed below)

1. Loss of containment integrity

2. Severe storm erosion

3. Drainage failure

III. ACTIVITIES REQUIRED

A. Collecting, removing and treating leachate

1. Describe your leachate collection system (i.e., pumping and collecting procedures)

a. Describe the monitoring system

b. Estimated volume of leachate collected per month

2. Describe leachate treatment process

a. Is treatment on-site? If so, describe process for treatment

b. Design objectives

c. Materials and equipment required

3. Disposing of leachate

a. If discharged to public waters, include copy of water pollution control permit

b. If hauling off-site, distance to disposer

c. Disposing of residuals

(1) Quantity of residuals

(2) Characteristics

(3) If disposed on-site, where? (include drawing of disposal area)

(4) If off-site, distance to disposer

4. Maintaining equipment

a. Repairs and replacements required

b. Regular maintenance required

B. Gas Collection

If a gas collection system is required at your facility, complete this section

1. Monitoring requirements

   a. Type of monitoring samples

   b. Number of samples

   c. Type of analysis

   d. Frequency of analyses

   e. Location of anlayses (e.g., off-site laboratory analysis), if applicable

2. Maintenance of system

   a. Anticipated frequency of repairs

   b. Resource requirements (gravel, piping, etc.)

   c. Regular maintenance required

C. Security and public access practices planned for the post-closure period

1. Description of security system

2. Maintenance schedule

XVI. CLOSURE COST ESTIMATE

Provide a copy of the most recent cost estimate, calculated to cover the cost of closure when the cost would be greatest. The closure cost estimate must account for each of the closure activities specified in the closure plan.

The cost estimates must be itemized and account for the cost of labor, administrative and managerial costs, overhead, materials, rented equipment, purchased services, transportation cost, etc. (The cost must be updated annually using an inflation factor).

At minimum the following items, as applicable must be included in the cost estimate:

I. STORAGE SURFACE IMPOUNDMENTS

A. Removing all free liquids and sludge

1. Method used

2. Time required to evaporate liquid

3. Cost of routine operations per day

4. Cost of maintenance during evaporation
5. Estimated volume of sludge
6. Cost of removing sludge off-site per cu. yd.
7. Removal costs per cu. yd.
8. Hauling costs per cu. yd.
9. Total costs per cu. yd. of disposal
10. Costs of removing sludge
11. Total costs

B. Decontaminating surface

1. Surface area of contaminated soil
2. Depth of removal
3. Total volume to be removed
4. Cost of removal per cu. yd.
5. Total cost of removal
6. Cost of hauling of off-site landfill per cu. yd.
7. Total cost of hauling
8. Fee per cu. yd. for disposing in off-site landfill
9. Total cost of disposal
10. Decontaminating equipment
11. Decontaminating and flushing pump and liquid lines
12. Disposing of residues for decontamination
13. Total costs

C. Groundwater monitoring

1. Number of wells monitored
2. Number of samples per well
3. Total number of samples

4. Number of hours required for collecting the sample (per sample)

5. Total number of hours required to collect the samples

6. Number of hours required for preparing and delivering samples

7. Person-hour costs for collecting samples

8. Total sampling and collection costs

9. Number of ground-water quality analyses

10. Number of ground-water contamination analyses

11. Unit cost of ground-water quality analysis

12. Unit cost of ground-water contamination analysis

13. Total ground-water quality analysis costs

14. Total ground-water contamination analysis costs

15. Total analyses costs

16. Number of technical hours for administration (e.g., reporting data to EPA)

17. Person-hour technical costs

18. Total technical costs for administration

19. Number of clerical hours

20. Person-hour clerical costs

21. Total clerical costs

22. Total administrative costs

23. Monitoring equipment maintenance

24. Total monitoring costs

D. Professional certification

1. Number of person-hours required for inspections

2. Costs per person-hour

3. Total costs of independent professional engineer certification

4. Number of technical hours required for administrative duties

5. Person-hour costs for technical administrative duties

6. Total administrative costs for technical labor

7. Number of clerical hours required for administrative duties

8. Person-hour costs for clerical administrative duties

9. Total administrative costs

10. Total certification costs

E. Total costs of closure including administration and contingency

1. Cost of removing free liquids and sludge

2. Cost of decontaminatius facility

3. Cost of ground-water monitoring

4. Cost of professional certification

5. Total of Line 1 through Line 4

6. Administration

7. Contingencies

8. Total costs of closure

II. Disposal Surface Impoundments

A. Removing free liquid and decontamination

1. Method used

2. Time required to evaporate liquid

3. Cost of routine operations per day

4. Cost of maintenance during evaporation

5. Volume of remaining sludge

6. Source of sorbent materials

7. Cost of sorbent materials

8. Unit cost of mixing

9. Cost of mixing and stabilization

10. Total cost of removing free liquids and sludge stabilization

11. Decontaminating equipment

12. Decontaminating and flushing pumps and liquid liners

13. Disposing or treating residues from decontamination

14. Total costs of all activities

B. Final cap

1. Area to be capped

2. Required impermeable material (including provision for suitable slope)

3. Source of material

4. Cost of material

5. Required topsoil

6. Source of topsoil

7. Cost of topsoil

8. Cost per cu. yd. of hauling, compacting, and grading impermeable material

9. Cost of impermeable portion of cap

10. Cost of placing topsoil

11. Total cost of cap

C. Planting final vegetation

1. Area to be vegetated

2. Type of vegetation to be used

3. Quantity of seed per acre

4. Cost of seed per pound
5. Total cost of seed
6. Type of fertilizer to be used
7. Quantity of fertilizer per acre
8. Cost of fertilizer per ton
9. Total cost of fertilizer
10. Cost of soil perparation per acre (excluding materials)
11. Total cost of preparing soil
12. Cost per acre of seeding (excluding materials)
13. Cost of seeding
14. Cost per acre of mulching
15. Total mulching costs
16. Total costs for vegetation

D. Groundwater monitoring

1. Number of wells monitored
2. Number of samples per well
3. Total number of samples
4. Number of hours required for collecting the sample (per sample)
5. Total number of hours required for collecting the samples
6. Number of hours required for preparing and delivering samples
7. Person-hour costs for collecting samples
8. Total sampling and collection costs
9. Number of ground-water quality analyses
10. Number of ground-water contamination analyses
11. Unit cost of ground-water contamination analysis

13. Total ground-water quality costs

14. Total ground-water contamination analysis costs

15. Total analysis costs

16. Number of technical hours for administration (e.g., reporting data to EPA)

17. Person-hour technical costs

18. Total technical costs for administration

19. Number of clerical hours

20. Person-hour clerical costs

21. Total clerical costs

22. Total administrative costs

23. Monitoring equipment maintenance

24. Total monitoring costs

XVII. POST CLOSURE COST ESTIMATE

Provide a copy of the most recent post-closure cost estimate, calculated to cover the cost, in current dollars of post-closure monitoring and maintenance of the facility in accordance with the applicable Post-Closure Plan (the cost must be updated annually using an inflation factor)

At minimum the following items, as applicable, must be included in the cost estimate:

A. Periodic facility inspection

1. Number of technical management person-hours required for each routine inspection of the closed facility.

2. Annual number of routine inspections

3. Person-hour costs for technical management labor

4. Technical labor costs for annual routine inspections

5. Annual number of engineer-supported inspections

6. Number of independent state-certified engineering hours for each engineer-supported inspection

7. Number of technical management hours for each engineer-supported inspection

8. Person-hour cost for a professional engineer

9. Engineering labor costs for the engineer-supported inspections

10. Technical labor costs for the engineer-supported inspections

11. Labor costs for the engineer-supported inspection

12. Truck rental cost for each inspection

13. Annual truck rental cost for inspections

14. Total annual inspection cost

B. Routine Monitoring and Maintenace Activities

Mowing Operations

1. Facility acreage

2. Mowing labor (per acre)

3. Mowing equipment (per acre)

4. Unit mowing cost

5. Annual frequency of mowing

6. Annual cost of mowing

Routine Erosion Damage Repair

7. Annual routine erosion rate

8. Total annual routine erosive loss

9. Unit cost for hand excavation of soil

10. Unit cost for transporting of soil on-site

11. Unit cost for hand compacting soil (repairing erosive damage)

12. Unit cost of seeding

13. Aggregate unit cost of repairing routine soil erosion damage

14. Total annual cost for repairing erosive damage of a routine nature

15. Adjustment factor to account for unusually wet seasons

16. Annual cost for repairing routine erosive damage

Fence Replacement

17. Frequency of replacing fence

18. Facility perimeter

19. Unit cost of replacing fence

20. Total cost of fence replacement

21. Pro-rated anual cost of fence replacement

Fertilizing

22. Unit cost for fertiziling

23. Number of fertilizer applications for first 3 years

24. Number of fertilizer applications during remainder of post-closure

25. Total fertilizing costs

26. Annual cost of facility fertilization

Ground-water Monitoring Well Replacement

29. Unit cost for replacing well
30. Number of wells needing replacement during the post-closure period

31. Total cost of monitoring well replacment during the entire post-closrue period

Leachate Pumping and Disposal

32. Frequency of removing the leachate

33. Average monthly total leachate withdrawal

34. Unit cost of removing the leachate to an active off-site TSDF

35. Total annual cost of removing leachate

36. Unit cost for disposing of leachate off-site

37. Annual costs for disposing off-site

38. Total annual costs for removing and disposing of leachates

Ground-Water Monitoring

39. Number of wells monitored

40. Number of samples taken per well (annual)

41. Total number of samples per well (annual)

42. Number of hours for collecting the samples (per sample)

43. Total number of hours for collecting samples

44. Total number of hours for preparing and delivering samples

45. Total sample handling hours

46. Person-hour costs for handling ground-water samples

47. Total sample handling cost

48. Unit cost of ground-water quality analysis

49. Unit cost of ground-water quality analysis (annual)

50. Total cost for ground-water quality analysis (annual)

51. Total cost for ground-water contamination analysis (annual)

52. Total annual ground-water monitoring costs (line 49)

Routine Maintenance Summation

53. Annual mowing cost

54. Annual cost for repairing routine erosive damage

55. Annual cost for replacing fence

56. Annual cost for fertilizing

57. Annual cost for replacing well

58. Annual cost for removing leachate

59. Annual cost for ground-water monitoring

60. Total annual cost for routine activities

C. Erosion Damage Contingency

1. Percentage of vegetation removed

2. Facility acreage

3. Acreage reduced to bare soil

4. Annual per acre soil loss rate (without vegatative cover)

5. Monthly bare ground soil loss rate

6. Amount of soil lost before repair are instituted

7. Unit cost for excavating and loading soil
8. On-site haul of excavated soil to area needing repair

9. Filling and compacting the eroded areas

10. Total unit cost for soil replacement

11. Cost of replacing lost soil

12. Unit cost of seeding the bare soil

13. Unit cost for fertilizing

14. Unit cost for mulching with straw

15. Total unit replanting cost

16. Total replanting cost

17. Number of erosive incidents expected in the post-closure period

18. Total cost for repairing damge from erosive incidents

19. Total annual cost for repairs required by erosive incidents

D. Initial replanting to establish vegetation

1. Percentage failure of vegetation per year
2. Number of years required for full vegetation
3. Facility acreage
4. Expected total acres to be replanted due to initial failure of vegetative cover
5. Annual per acre soil loss rate (for areas with inadequate vegetative cover)
6. Monthly bare ground soil loss rate
7. Amount of soil lost before repairs are instituted
8. Unit cost for soil excavation and loading
9. On-site haul of excavated soil to area needing repair
10. Filling and compacting eroded areas (using a dozer)
11. Total unit cost for soil replacement
12. Cost of soil replacement
13. Unit cost for seeding bare soil
14. Unit cost for fertilizing
15. Unit cost for mulching with straw
16. Total unit replanting cost
17. Total replanting costs
18. Total costs for initial replanting to establish vegetation
19. Total annual cost

E. Administrative Services

1. Number of technical hours required for administraive duties (annual)
2. Person-hour cost for technical administrative duties
3. Total administrative costs for technical labor
4. Number of clerical hours required for administraive duties

5. Person-hour costs for clerical administrative duties

6. Total administraive costs for clerical labor

7. Office or trailer rental (includes eqipment and supplies)

8. Total annual administrative costs for the post-closure activities.

F. Total costs including administration and contingencies

1. Cost of inspections

2. Cost of routine monitoring and maintenance

3. Cost of contingency erosion repairs

4. Cost of initial replanting to establish vegetation

5. Cost of post-clsoure adminstrative services

6. Total of Line 1 throug Line 5

7. Contingencies
8. Administration, including fees, insurance et.

9. Total annual costs of post-closure

XVII. FINANCIAL ASSURANCE

The Trust agreement submitted must be updated including:

1. Submission of a new legible Attachment A, showing current cost estimate. If these are changes or revision of the cost estimates, they must be reflected in the trust agreement.

2. Payment schedule based upon permit period of 10 years.

3. Evidence of having made the first payment pursuant to the schedule.

XIX. OTHER FEDERAL LAWS

Demonstrate compliance with the requirements of applicable federal laws such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and Fish and Wildlife Coordination Act.